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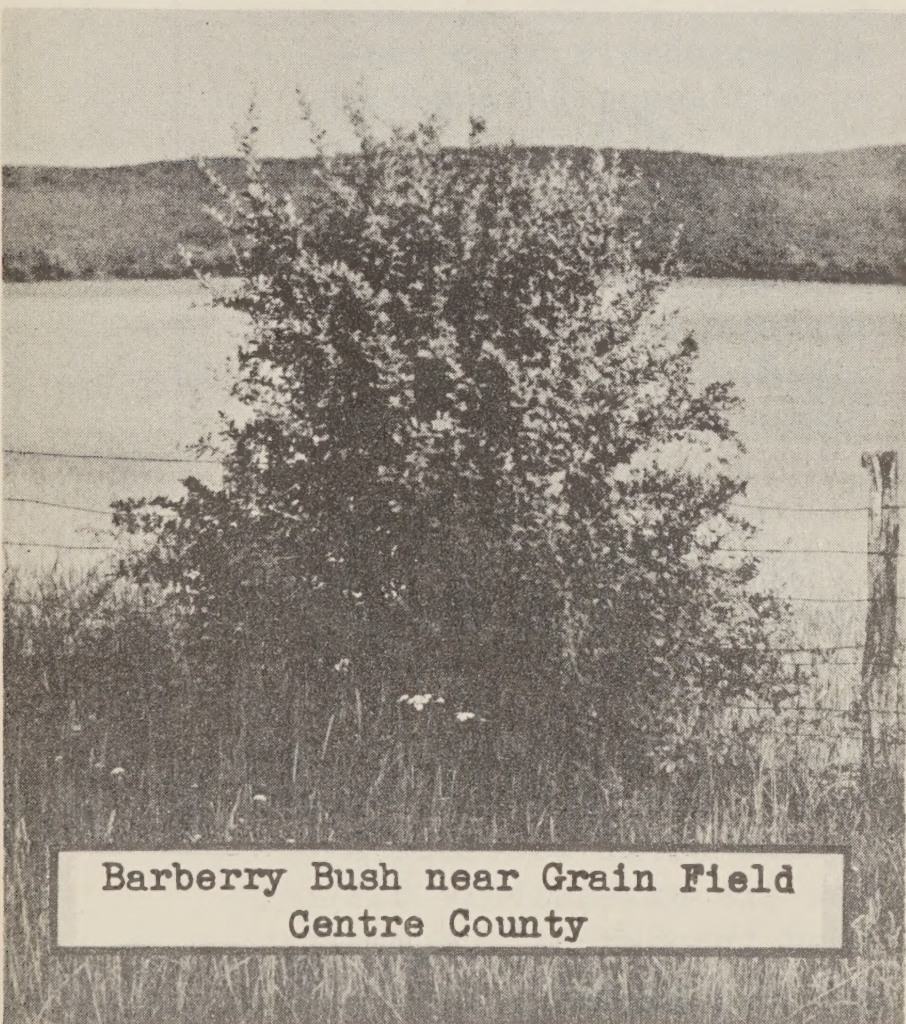
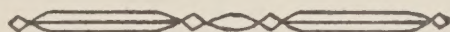
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Barberry

Eradication

in

Pennsylvania



Barberry Bush near Grain Field
Centre County

WHAT WILL BARBERRY ERADICATION ACCOMPLISH?

THE eradication of rust-susceptible varieties of barberry bushes from the grain-growing areas of Pennsylvania will reduce the number and severity of local outbreaks of stem rust. In many localities in the northeastern part of this State stem rust has been directly responsible for the complete abandonment of wheat production.

Oats as a nurse crop for grasses in the crop rotation, has replaced wheat. However, many farmers have experienced repeated failures with their oat crops, owing to stem rust. In other areas where barberry bushes were well established, certain farms were known as "rust-farms", because they could not produce a normal crop of small grain, due to rust damage.

Losses from stem rust can be reduced by:

- (1) The eradication of rust-susceptible varieties of barberries.

- (2) Sowing rust-resistant varieties of small grain.

- (3) Planting spring grains early on well-prepared seed-beds.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Entomology and Plant Quarantine
Cooperating with
State Agricultural and Other Agencies
In the Eradication of the Common Barberry

Barberry Eradication Office
303 Botany Building
State College, Pennsylvania

Dear Sir:

Many farmers in Pennsylvania and other grain-growing States are protecting their small grain crops (wheat, oats, barley, and rye) from the damaging effects of stem rust by helping to eradicate common barberry bushes.

This circular contains a brief discussion of the stem rust disease. Learn what it is, how it injures the grain crops, and how you can help prevent it.

Do not destroy bushes that you think are rust-spreading barberry until you have sent a twig to the above address and had it identified. Only certain kinds of barberry harbor rust.

Very truly yours,

L. K. Wright
L. K. Wright
Leader in Charge

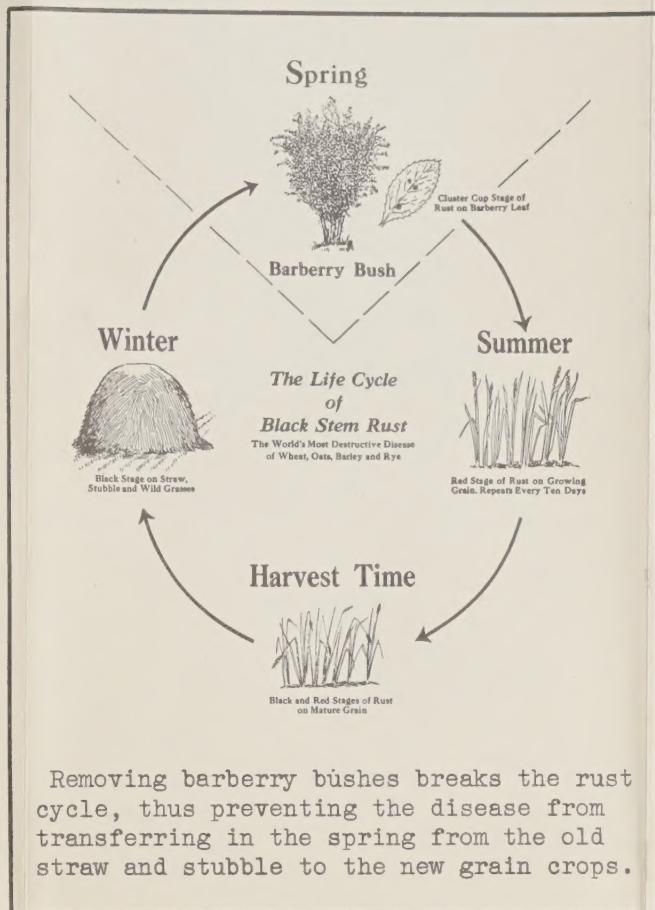
Protect Pennsylvania Grain Crops From Stem Rust

STEM RUST CAUSED BY PARASITIC PLANT

STEM RUST is a disease of wheat, oats, barley, rye, and many native grasses. It is caused by a tiny parasitic plant called a fungus. The rust fungus lives during the spring on the leaves of the common barberry, and during the remainder of the year on the leaves and stems of grains and grasses. Rust reproduces by means of spores that germinate and grow in a manner similar to seeds of higher plants.

As the grain crops ripen, the rust fungus prepares for the winter. Tiny dark brown or black spores remain alive during the winter on the old straw, stubble, and wild grasses. In the spring they germinate and in a few hours produce smaller spores, which are discharged into the surrounding air. These tiny spores can attack only the leaves and tender growing shoots of certain kinds of barberry bushes. On the barberry another crop of spores is produced, which in

COMMON BARBERRY IS SPRING HOME FOR RUST FUNGUS



WARM DAMP WEATHER FAVORS RUST

turn infect the growing grain plants, producing the red or summer stage of the fungus. Thus the diseased leaves of barberry become the source of rust infection to the new grain crops.

The rapidity with which rust spreads depends largely on weather conditions. Just as grain plants must have moisture and favorable temperature for normal growth, so also must rust plants have the right kind of weather. Rust grows and spreads rapidly on warm damp days.

Grain attacked by stem rust about the time it is heading may be completely destroyed within a brief period of from 2 to 3 weeks. Every harmful barberry bush destroyed means one less source from which early destructive stem rust epidemics may develop. Preventing stem rust epidemics helps to lower the cost of production by stabilizing yields per acre and quality of the harvested grains.

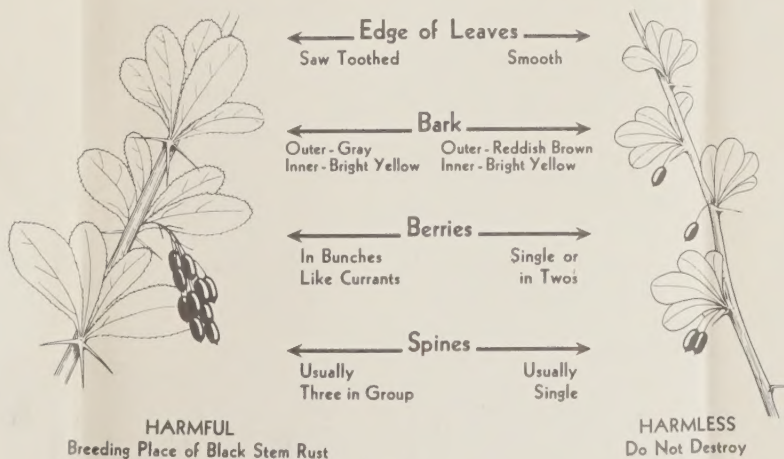
Learn to Know the Rust-spreading Barberry

RUST-SPREADING BARBERRY EASILY RECOGNIZED

THE common or rust-spreading barberry is a bush or shrub that in general growth habit resembles a lilac or honeysuckle. It may be found growing in lawns, gardens, orchards, and wood-lots, or along the banks of streams and rivers. Often extensive uncultivated areas become infested with barberry as a result of birds scattering seed from a few bushes planted for ornamental purposes. By examining the leaves, thorns, berries, and roots, barberry bushes may be easily distinguished from other shrubs (see diagram).

RUST-SUSCEPTIBLE varieties of barberry bushes have been growing in Pennsylvania since the early part of the eighteenth century. They were introduced by the early settlers and now are extensively distributed throughout the grain-growing areas of the State.

IDENTIFYING CHARACTERISTICS of COMMON BARBERRY and JAPANESE BARBERRY



JAPANESE BARBERRY HARMLESS

THE Japanese barberry is so commonly grown as a decorative shrub in lawns and gardens is not attacked by stem rust and should not be destroyed. The leaves of this species have smooth edges and may be green or purple in color. The bark is reddish brown and the berries, bright red when ripe, are usually produced singly or not more than two or three in a place. The thorns also differ from those of the common barberry. They usually appear one in a place, or in pairs.

DO NOT DESTROY BUSHES THAT YOU THINK ARE COMMON BARBERRY UNTIL YOU HAVE SENT A TWIG

To be identified by
THE BARBERRY ERADICATION OFFICE
303 BOTANY BUILDING
STATE COLLEGE, PENNSYLVANIA

MORE than 23 million barberry bushes have been destroyed in the North Central States since the eradication program was undertaken in 1918. There are many harmless bushes that are more desirable than the common barberry for landscaping purposes.

STEM RUST REDUCES QUALITY AS WELL AS YIELD

THIS IS
WHAT BLACK
STEM RUST
DOES TO
WHEAT



PLUMP
HEALTHY
KERNELS
FROM
RUST-FREE
WHEAT

FOR the past 50 years farmers in Pennsylvania have realized that grain crops in the immediate vicinity of barberry bushes were subject to severe losses from stem rust. Local campaigns to eradicate these bushes were launched under direction of local leaders and the State Extension Service. Losses from stem rust were reduced in these communities for a period of from 6 to 10 years, until barberberries again became prevalent.

From 12 to 15 pounds of salt applied at the roots of an average-sized bush is sufficient to kill it.

PENNSYLVANIA BEGINS BARBERRY ERADICATION

THE first legislation in the United States requiring the eradication of rust-spreading barberry bushes was enacted by the Colonists in the New England States in 1726. It was not until 1918, however, that an organized eradication program was undertaken in 13 of the North Central States.

In August 1935 a project was started to eradicate rust-spreading barberry bushes in the important grain-growing areas in Pennsylvania. By June 30, 1937, more than 3 million bushes were destroyed on 3,780 properties in 10 counties. Many of these bushes were found growing on the edges of grain fields. Others were destroyed in wood-lots, on stream banks, and on rough lands adjacent to grain fields. Distinct spreads of rust from barberries to grains and grasses were very common.

Barberry eradication in Pennsylvania is administered by the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, in cooperation with the Pennsylvania State Department of Agriculture, the Department of Botany, School of Agriculture, Pennsylvania State College; and the Rust Prevention Association, Minneapolis, Minn.

